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BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

REQUEST FOR WELL CLOSURE

GROUNDWATER MONITORING WELL TMW-16

To: **Mr. Brian Mossman**
Boeing Realty Corporation
3855 Lakewood Blvd.
Building 1A MC D001-0097
Long Beach, CA 90846

From: **Haley & Aldrich, Inc.**

Date: **January 7, 2003**

Re: **Request for Closure, Groundwater Monitoring Well TMW-16, Boeing Realty Corporation, Former C-6 Facility, Los Angeles, California**

Introduction

Haley & Aldrich, Inc. is herein providing this request to close groundwater monitoring well TMW-16. Groundwater monitoring well TMW-16 is located along the western boundary of Parcel C, north of Knox Street, on the Boeing Realty Corporation's (BRC's) Former C-6 Facility in Los Angeles, California (Site). The Site location is shown on Figure 1 and groundwater monitoring well TMW-16 is shown on Figure 2.

Background

Groundwater monitoring well TMW-16 was installed on January 29, 1999, by Kennedy/Jenks Consultants as part of a Site-wide groundwater monitoring program. The purpose of groundwater monitoring well TMW-16 was to facilitate sampling and measurement of groundwater conditions at the top of the Bellflower Aquitard and is not part of the planned groundwater bioremediation monitoring program. Groundwater monitoring well TMW-16 is constructed of 2-inch diameter Schedule-40 PVC screen and casing, extended to a depth of approximately 81.5 feet, and has a screened interval from approximately 61.5 to 81.5 feet below ground surface (bgs). The present screened interval and total depth of TMW-16 differ from the attached well construction log due to site grading activities conducted in 2001. Site grade was raised approximately six feet from the original grade. The casing of TMW-16 was subsequently extended to match the current site grade. The measured depth to groundwater in TMW-16 was 68.4 feet bgs on September 16, 2002.

Groundwater monitoring well TMW-16 has been sampled 7 times including the most recent sampling on September 16, 2002. Trichloroethene (TCE) is the primary constituent present, and concentrations have been steadily declining from the initial sampling event in 1999 (4.5 ug/l) to the most recent sampling event in September 2002 (1.7 ug/l).

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PROPOSED WELL CLOSURE PROCEDURE

The closure of groundwater monitoring well TMW-16 will proceed as follows:

1. **Permit** – Prior to drilling activities, a permit will be obtained from the Los Angeles County Department of Health Services for the closure of groundwater monitoring well TMW-16.

2. **Groundwater Level Measurement** – Measure the depth to groundwater in the well from the top of casing using an electronic water level indicator. The measurement will be recorded in the field log.

3. **Groundwater Sampling** - Groundwater monitoring well TMW-16 was recently sampled on September 16, 2002 as part of the Site-wide semi-annual groundwater monitoring event. Sampling was performed in accordance with the Regional Water Quality Control Board-Los Angeles Region (RWQCB-LA)-approved Groundwater Monitoring Workplan-2002, Boeing Realty Corporation, Former C-6 Facility, dated December 20, 2001. Based on this recent sampling, it is proposed that additional groundwater sampling of TMW-16 is not necessary as part of the well closure effort. The laboratory analytical results of the September 2002 sampling event will be reported in the well closure report.

4. **Well Closure** – TMW-16 will be closed by pumping bentonite grout under pressure into the well casing and filter pack. The volume of bentonite grout pumped into the well will be greater than or equal to the volume of the casing, screen, and filter pack volume. The upper ten feet of the well casing will be over-drilled using a hollow-stem auger of a diameter larger than the initial borehole and cement seal. The top ten feet of the borehole will then be backfilled with granular bentonite to allow for site redevelopment excavation and grading. Well closure work will be performed by a California-licensed well contractor and under the oversight of a California-licensed professional engineer or registered geologist. Following well closure, a letter report will be submitted to the RWQCB documenting the well closure activities by January 31, 2002.

Wastes generated by the well closure process will be containerized and profiled for subsequent disposal.

Haley & Aldrich's Site-Specific Health & Safety Plan (SHSP) dated June 8, 2001 will be used for on-site personnel performing the well closure activities. The SHSP has been previously submitted to the RWQCB.

Should you have any questions concerning the contents of this memorandum or require additional information, please contact either of the undersigned.

Sincerely yours,
Haley & Aldrich, Inc.

Robert L. Manriquez, R.G., R.E.A.
Senior Geologist

REGISTERED GEOLOGIST
ROBERT
L.
MANRIQUEZ
No. 7407
Exp. 2004
STATE OF CALIFORNIA

Scott P. Zachary
Project Manager

Attachments:
Figure 1 – Site Location Map
Figure 2 – Well Location
TMW-16 Well Construction Log

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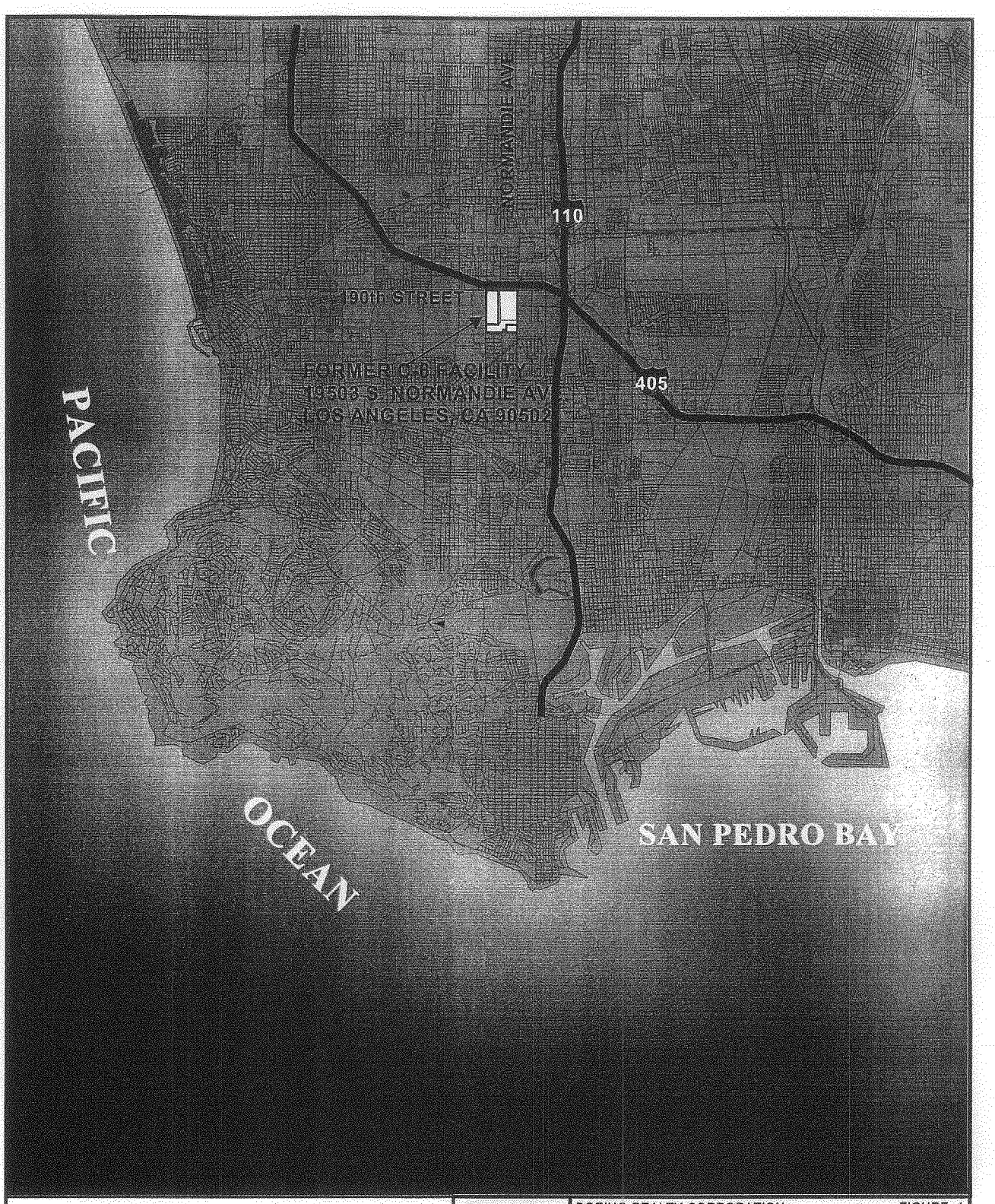

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UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS

BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

FIGURE 1

SITE LOCATION PLAN

SCALE AS SHOWN

OCTOBER 2002

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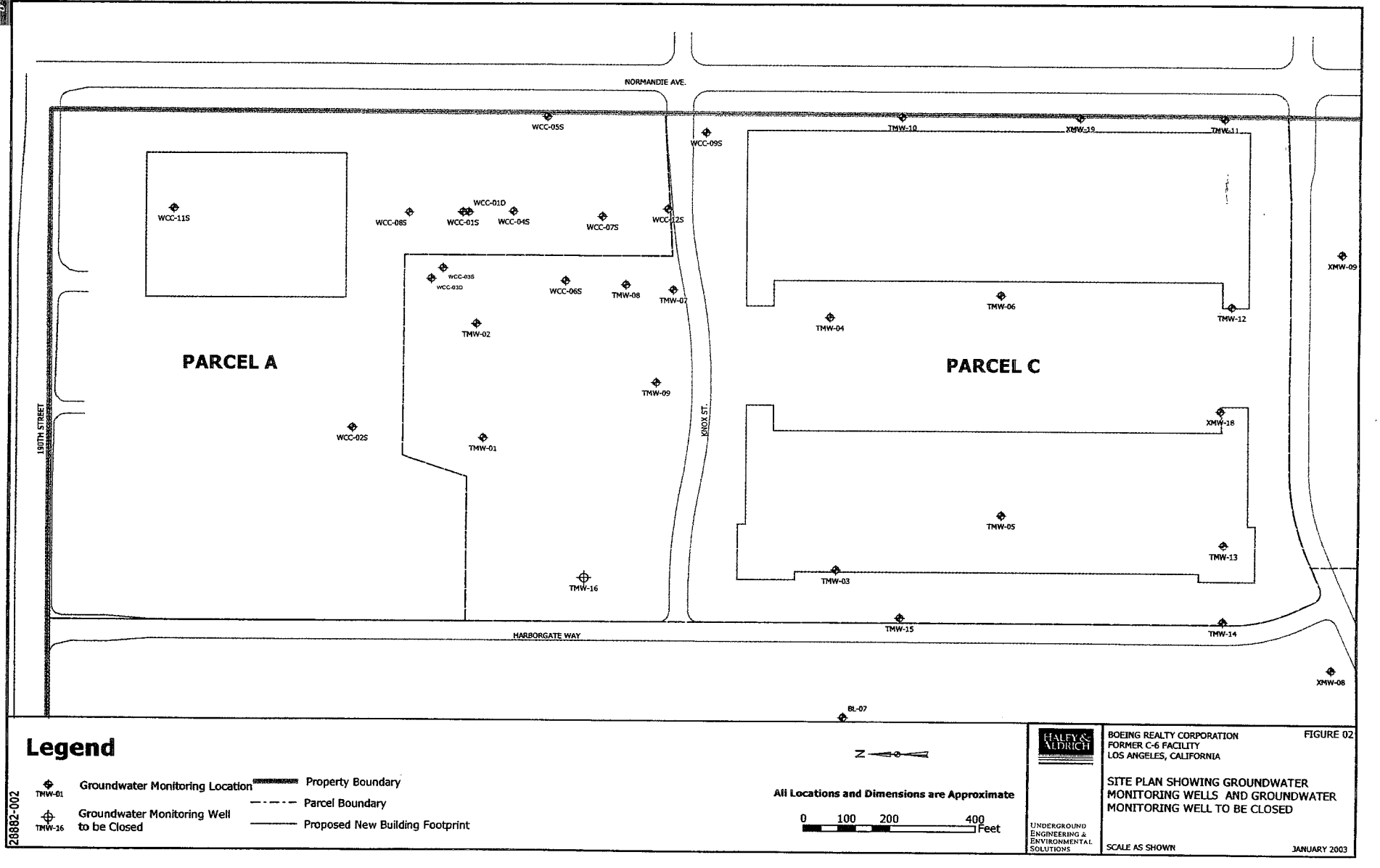

BOE-C6-0130466

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Northeast of Building 20		Boring/Well Name: TMW-16	
DRILLING COMPANY: West Hazmat	DRILLER: Scott Campbell	Project Name: Boeing C-6 Facility	
DRILLING METHOD (S): CME 75, Hollow Stem Auger	DRILL BIT (S) SIZE: 8"	Project Number: 994001.00	
BLANK CASING: 2" diam. PVC Schedule 40	FROM 0 TO 56.5 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 82.5 feet
PERFORATED CASING: 2" diam. PVC Schedule 40, 0.010" slot	FROM 56.5 TO 76.5 FT	DATE STARTED: 1/29/99	DATE COMPLETED: 1/29/99
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 54.5 TO 82.5 FT	DEPTH TO WATER: 65 feet	
SEAL: Medium Bentonite Chips	FROM 51.7 TO 54.5 FT	LOGGED BY: M. Balderman	
GROUT: Neat Portland Cement	FROM 0 TO 51.7 FT	SAMPLING METHODS: 2" x 18" California Split-Spoon and CME dry core	WELL COMPLETION: ☒ SURFACE HOUSING ☐ STAND PIPE _____ FT

SAMPLES Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Asphalt at surface 8" gravel/asphalt base
			7 10 14		5			ML	2.5YR 5/2	Clayey SILT with Minor Fine Sand: weak red, damp, medium stiff
			12 10 11 14 18					ML	7.5YR 5/3	Clayey SILT with Minor Fine Sand: brown, damp, very stiff
			11 15 17	8.2	10					increasing sand below 12 feet 1-inch thickness of disseminated calcite at 13.5 feet
core					15			SM	7.5YR 5/3	Fine Silty SAND: brown, 60% sand, damp, dense
			10 14 20	12.4	20			CL	7.5YR 5/2	Silty CLAY with Minor Fine Sand: brown, irregular calcite stringers, damp, hard
core			12 15 30	11.5	25			ML	2.5Y 5/4	Sandy SILT: light olive brown, 40% fine sand, damp, hard clayey silt interbed from 27.7 to 28 feet calcite stringers at 29.5 feet
core			14 17 20	17.2	30			SM	2.5Y 6/4	Fine Silty SAND: light yellowish brown, 80% sand, damp, dense
core					35					

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Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name: TMW-16
Project Name: Boeing C-6 Facility
Project Number: 994001.00

Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
core								SM		Fine Silty SAND, continued
										hard caliche nodules from 36.5 to 37 feet
									2.5Y 6/2	light brownish gray
			20 25 27	8.9	40					
core					45					hard calcite nodules at 47.3 feet abundant calcite cement to 50 feet
			10 14 25	13.9	50	Top of Seal 51.7 feet		CL	2.5Y 6/2	Silty CLAY: light brownish gray, trace of fine sand, damp to moist, hard
								CL		Sandy CLAY: 30% fine sand
						Top of Filter 54.5 feet		SM	2.5Y 7/1	Fine Silty SAND: light gray, 80% sand
core					55			ML	2.5Y 6/2	Clayey SILT: light brownish gray, trace of fine sand, damp, hard
						Top of Screen 56.5 feet		ML	2.5Y 5/2	Fine Sandy SILT: grayish brown, 40% sand, trace of fine mica, moist, hard
								SM		grades to Silty SAND
			11 16 23	22.7	60	Depth to first water 61 feet		ML		grades to Sandy SILT
								SM ML	2.5Y 5/4	water encountered at 61 feet Fine Silty SAND and Sandy SILT: light olive brown, trace of fine mica, wet, dense
core					65			ML	2.5Y 5/3	Fine Sandy SILT: light olive brown, 30% fine sand clayey, moist, hard
								SM	2.5Y 5/4	Fine Silty SAND: light olive brown, 50% sand
					70			CL	7.5YR 5/6 7.5YR 6/1	Silty CLAY: mottled strong brown and gray, trace of fine sand, wet, hard
								ML	2.5Y 5/4	Fine Sandy SILT: light olive brown, 35% sand, wet, hard
core					75	Bottom of Screen 76.5 feet		SM	2.5Y 5/2	Fine Silty SAND: grayish brown, 65% sand, trace of fine mica, wet, dense
					80					Boring terminated at 82.5 feet.

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